

MERCURY.140A1

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Goldstein, et al.
Appl. No.	:	10/038,098
Filed	:	October 19, 2001
For	:	TRANSACTION BREAKDOWN FEATURE TO FACILITATE ANALYSIS OF END USER PERFORMANCE OF A SERVER SYSTEM
Examiner	:	Uzma Alam
Group Art Unit	:	2157

DECLARATION UNDER 37 C.F.R. § 1.131

I, Ido Sarig, hereby declare as follows:

1. I am one of the named inventors listed on the above-referenced patent application ("the present application"), which claims priority to provisional application no. 60/289,923 filed May 9, 2001. At the relevant time period (April 1999 – February 2002) I was the Director, then Vice President, of Product Marketing at Mercury Interactive Corporation ("Mercury"), which is the assignee of the present application.

2. I was head of Mercury's Product marketing for the Application Management Business Unit from 1999 through February 2002. In that capacity, I was responsible for defining product features for Mercury's Topaz software product line. I am the author of the company-wide internal memo attached herein as Exhibit A, announcing the June, 2000 availability of "Transaction Breakdown Analysis" features (discussed below) in the Topaz product. The present application describes several inventive features of the Topaz product.

3. The Topaz product provided functionality for automatically monitoring web site systems to detect performance problems. Customers would use Topaz generally as follows. Initially, a user would configure a Topaz agent (a software component which would run on a

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"client" computer) to execute one or more web site transactions, such as a "login" transaction or a "register new user" transaction. Each such transaction would typically specify a sequence of URLs to be requested by the Topaz agent from a particular web site system. The Topaz agent would thereafter periodically execute these transactions as a simulated user, and would measure and report the associated transaction times. Typically, a given web site would be monitored via Topaz agents in multiple geographic locations, such that the web site's performance as seen from multiple geographic locations would be monitored.

4. Based on my experience in evaluating how version 1.0 of the Topaz product was used by Mercury customers in 1999, I came up with the idea to enhance the product's capabilities (which at the time included measuring the end-to-end transaction time) such that the total transaction time would be broken down to show the times spent on each component of the transaction (including, without limitation, the DNS resolution time, the connection time, the network delay time, the server time, and the client time). I subsequently worked with Mercury's R&D team (including the co-inventors listed in the present application) to define the characteristics of such a product enhancement, as well as the specific implementation of it. This enhancement, which is described primarily from page 33, line 7 to page 37, line 21 of the present application, became known as the "transaction breakdown" feature of Topaz (also referred to as "transaction performance breakdown").

5. We incorporated the transaction breakdown feature and other product enhancements into Topaz 2.0, which was the second major release of the Topaz product and which was publicly released no later than June of 2000.

6. The transaction breakdown feature of Topaz 2.0 operated generally as follows. When a Topaz agent would interact with a web server system to execute a transaction, it would measure time durations between specific events. These time measurements would be used by the Topaz software to determine specific component times associated with the transaction, including DNS resolution time, connection time, server time, server/network overlap time, network time, and client time. The results of this process would be presented to users via a transaction breakdown report of the Topaz 2.0 user interface. An example of a transaction breakdown report generated by the Topaz software is depicted in Figure 23 of the present application.

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7. As part of our pre-public-release testing of Topaz 2.0 prior to June of 2000, we verified that the transaction breakdown feature worked for its intended purpose. This testing included executing actual web site transactions with a Topaz 2.0 agent, and in connection with these transactions, verifying that the Topaz 2.0 agent accurately performed the functions described in the preceding paragraph. See Exhibit D, discussed below.

8. Mercury publicly released Topaz 2.0 no later than June of 2000. As part of this release, the Topaz 2.0 product was made available to customers on a usage-based subscription basis.

9. As evidence of Mercury's release of Topaz 2.0 and its transaction breakdown feature, attached as Exhibit A is an internal "marketing alert" memo I authored, dated June 6, 2000, regarding the release of Topaz 2.0. I sent this memo to Mercury's sales force and others at Mercury. Section 1 of this memo, titled "Transaction Breakdown Analysis," describes an embodiment of the transaction breakdown feature claimed in the present application.

10. Attached as Exhibit B are selected pages of the Topaz 2.0 User's Guide, including pages that describe the transaction breakdown feature of Topaz 2.0 as publicly released no later than June of 2000. Pages 261-266 describe an embodiment of the transaction breakdown feature claimed in the present application. This User's Guide was made available in electronic form no later than June of 2000 to customers of the Topaz 2.0 product.

11. Attached as Exhibit C is a press release dated May 30, 2000, printed from <http://erpsurvival.com/content/view/2080/2/>, further evidencing Mercury's release of Topaz 2.0 no later than June of 2000. This press release briefly mentions the transaction breakdown feature, as well as other features added via Topaz 2.0.

12. Attached as Exhibit D is a PowerPoint slide with a transaction breakdown report generated by the Topaz product from actual test data collected between April 9, 2000 and April 15, 2000. This report was generated using the process claimed in the present application in April of 2000, and shows that the Transaction Breakdown feature was operational (performed its intended function) at that time.

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13. The transaction breakdown feature of Topaz 2.0 was successfully used for its intended purpose in the United States, both by Mercury and its customers, no later than June of 2000.

14. Included at the end of this Declaration are the pending claims of the present application. In connection with the preparation of this Declaration, I have reviewed each of these claims to evaluate whether each claim covers Topaz 2.0.

15. The Topaz 2.0 software, as made available and used in the United States no later than June of 2000, met all of the limitations of all of the claims except Claim 24, discussed below.

16. For example, with respect to Claim 1 of the present application, the Topaz 2.0 software was used in the United States no later than June of 2000 to perform "a method for monitoring performance of a transactional server as seen by end-users of the transactional server, the method comprising: executing a transaction between an agent running on a client computer at a remote end-user location and a transactional server, wherein the transaction includes a sequence of uniform resource locator (URL) requests transmitted from the agent to the transactional server over a network; measuring time durations between predefined events that occur during execution of the transaction, the measurements being made by the agent; using the measured time durations to automatically calculate at least a network time representing an amount of time attributable to the network and a server time representing an amount of time attributable to the transactional server; and displaying a break down of time involved in completion of the transaction into multiple components, including at least said network time and said server time."

17. Claim 24 is directed to a Root Cause Analysis feature that was not present in Topaz 2.0, but which was added in a subsequent release of Topaz.

18. I am currently a venture partner at Thomas Weisel Venture Partners in Palo Alto, California. I am no longer employed by Mercury.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States

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Code and that such willful, false statements may jeopardize the validity of the application or any patent resulting therefrom.

Dated: 9/27/06

By: 

Ido Sarig

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1. (Previously presented) A method for monitoring performance of a transactional server as seen by end-users of the transactional server, the method comprising:

executing a transaction between an agent running on a client computer at a remote end-user location and a transactional server, wherein the transaction includes a sequence of uniform resource locator (URL) requests transmitted from the agent to the transactional server over a network;

measuring time durations between predefined events that occur during execution of the transaction, the measurements being made by the agent;

using the measured time durations to automatically calculate at least a network time representing an amount of time attributable to the network and a server time representing an amount of time attributable to the transactional server; and

displaying a break down of time involved in completion of the transaction into multiple components, including at least said network time and said server time.

2. (Original) The method of Claim 1, wherein measuring time durations between predefined events includes measuring a domain name system (DNS) lookup time.

3. (Original) The method of Claim 1, wherein measuring time durations between predefined events includes measuring a time required to establish an initial connection between the agent and the transactional server.

4. (Canceled)

5. (Canceled)

6. (Original) The method of Claim 1, wherein measuring time durations between predefined events includes measuring a time duration between the agent receiving a first buffer of data from the transactional server and the agent receiving a last buffer of data from the transactional server.

7. (Original) The method of Claim 1, wherein measuring time durations between predefined events includes measuring a time spent by the agent processing the transaction on the client.

8. (Original) The method of Claim 1, wherein displaying a break down of time includes displaying an amount of time spent in resolving a domain name for the transactional server into an internet protocol address for the transactional server.

9. (Original) The method of Claim 1, wherein displaying a break down of time includes displaying an amount of time spent in establishing an initial connection between the client computer and the transactional server.

10. (Original) The method of Claim 1, wherein displaying a break down of time includes displaying an amount of time spent by the agent processing a transaction on the client computer.

11. (Previously presented) The method of Claim 1, wherein displaying a break down of time includes displaying at least one of the following: a DNS resolution time, a connection time, a client time, a server/network overlap time.

12. (Original) The method of Claim 1, further comprising:

executing the transaction from each of a plurality of geographically distributed locations; and

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displaying a break down of at least network time and server time for the transaction from each of the plurality of locations, whereby an administrative user of the transactional server may compare the network and server times for the transaction as seen by end users in each of the plurality of locations.

13. (Original) A system for monitoring performance of a transactional server as seen from an end user location, the system comprising:

an agent component that communicates with the transactional server over a network to execute a transaction, and measures time periods between predefined events that occur during execution of the transaction; and

a report generation component that generates a transaction breakdown display based on the time periods measured by the agent component, the transaction breakdown display indicating a breakdown of a total transaction response time into multiple components.

14. (Previously presented) The system of Claim 13, wherein the multiple components include a network time representing an amount of said total transaction response time that is attributable to the network, and a server time representing an amount of said total transaction response time that is attributable to the transactional server.

15. (Original) The system of Claim 14, wherein the multiple components further include a client time.

16. (Original) The system of Claim 15, wherein the multiple components further include a connection time and a DNS resolution time.

17. (Original) The system of Claim 15, wherein the multiple components further include a server/network overlap time.

18. (Original) The system of Claim 13, wherein the transaction comprises multiple uniform resource locator requests.

19. (Original) The system of Claim 13, wherein the agent measures a time taken to establish an initial connection with the transactional server.

20. (Canceled)

21. (Canceled)

22. (Original) The system of Claim 13, wherein the agent measures a time duration between the agent receiving a first buffer of data from the transactional server and the agent receiving a last buffer of data from the transactional server.

23. (Original) The system of Claim 13, wherein the agent measures a time spent by the agent processing the transaction on the client.

24. (Original) The system of Claim 13, further comprising a component that analyzes data collected by the agent component to identify correlations in time between degradations in transaction response times and degradations in the components of such transaction response times, to thereby facilitate identification of causes of end user performance problems.

25. (Previously presented) A method for monitoring performance of a server system, the method comprising:

receiving data from a plurality of computers in a plurality of geographic locations indicating time spent by a server in processing transaction requests from each of the plurality of computers;

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receiving data from the plurality of computers indicating time spent by a network in processing the transaction requests; and

generating a report page with graphical representations of the time spent by the server and the time spent by the network for each of the plurality of geographic locations to facilitate a determination of whether network and server delays are location dependent;

wherein said time spent by the server and said time spent by the network are measured via agent software executed by said plurality of computers.

26. (Previously presented) The method of Claim 25, further comprising receiving data from the plurality of computers indicative of, and displaying representations of, at least one of the following: client time, DNS resolution time, connection time, server/network overlap time.

27. (Original) A method of monitoring performance of a transactional server as seen from a remote user location, the method comprising:

executing a transaction between a client computer in the remote user location and the transactional server, wherein the transaction comprises a sequence of URL requests passed from the client computer to the transactional server over a computer network;

on the client computer, measuring time durations between predefined events that occur during execution of the transaction; and

based on the time durations as measured by the client computer, breaking down a total execution time of the transaction into multiple components, including at least a network time and a server time.

28. (Previously presented) The method of Claim 27, wherein the network time represents an amount of said total execution time that is attributable to the computer network, and the server time represents an amount of said total execution time that is attributable to the transactional server.

29. (Previously presented) The method of Claim 27, further comprising generating a display which graphically breaks down the total execution time of the transaction into the multiple components.

30. (Previously presented) The method of Claim 27, further comprising calculating the network time by summing multiple constituent time durations measured on the client computer.

31. (Previously presented) The method of Claim 27, wherein the method is performed by execution of agent software on the client computer.

32. (Previously presented) A computer readable medium having stored thereon a computer program which embodies the method of Claim 27.

33. (Previously presented) The method of Claim 1, wherein using the measured time durations to calculate the network time and the server time comprises averaging measured time durations from multiple executions of the transaction, such that the network and server times represent averages.

34. (Previously presented) The system of Claim 13, wherein the transaction breakdown display indicates average time durations of each of the components.

EXHIBIT A



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MEMO

TO: Mercury Interactive Sales, CSO, Marketing, R&D
CC: Amnon Landan
FROM: Ido Sarig
DATE: June 6th, 2000
SUBJECT: Topaz 2.0 is released
MKTG ALERT #177

This is a regular newsletter to the field. It is for internal use only! The objective for this marketing alert is to notify the field and office employees in Mercury Interactive to be prepared for any marketing activities that are forthcoming. This alert is intended to be short and informative; information you can't be without! Please refer all questions and responses directly to marketing, unless otherwise specified.

What's Inside This Alert:

- What's New in Topaz 2.0
 - Transaction Breakdown Analysis
 - Network Latency Breakdown Monitor - WebTrace
 - Page Component Breakdown
 - New Recorder utilizing Astra technology
 - Improved Agent : Stability, Self-Healing abilities
- Supported Environments

What's New in Topaz 2.0

I am very pleased to announce the general availability of Topaz 2.0. Topaz 2.0 is the first Web application performance management product that correlates the end-user performance experience with its root-cause in the Web infrastructure

The new functionality in this release includes: Transaction Breakdown Analysis, the WebTrace monitor, Page Component Breakdown, and a new Topaz Recorder.

1. Transaction Breakdown Analysis

Transaction Breakdown Analysis takes a transaction's end-to-end response time and breaks it down into DNS lookup time, Initial Connection time, Network time, Server time, and Client time. The Topaz agent collects the Transaction Breakdown Analysis information automatically, for every transaction it runs.

Key benefit of Transaction Breakdown Analysis

Using this feature, Operations staff can quickly pinpoint the source of the problem, and focus resolution efforts and expertise on the problematic part of their system, for faster resolution and redeployment.

Competitive differentiation

Mercury Interactive is the only Web APM solution provider to offer functionality for SSL-secured sites.

Mercury Interactive is the only Web APM solution provider to offer this type of break down for complete business transactions.

Current Limitations

Transaction Breakdown does not support nested transactions. It will ignore the interior transactions, and will generate an error comment in the log.

2. Network Latency Breakdown Monitor - WebTrace

Once a problem has been diagnosed as a network related issue by the Transaction Breakdown Analysis, further drill down into the network latency is available with WebTrace. WebTrace displays the exact route through the Internet between your computer and a specified destination computer. The information it produces includes how many hops the packet requires to reach the host and how long each hop takes.

A WebTrace query is run automatically by the Topaz agent, every time a transaction script is run

Key benefits of WebTrace

WebTrace can be used to figure out where the longest delays are occurring – pinpointing network bottlenecks.

WebTrace provides the most accurate measurement of the route between the source and destination, since it is TCP based and uses port 80, like actual HTTP traffic.

Competitive differentiation - How is this different from using “traceroute” to get the same information?

Most competitors, who offer similar functionality, use the standard “traceroute” utility to get this information. Unlike traditional traceroute, WebTrace is TCP based, and uses port 80 (the HTTP port). Thus, it is a far more accurate measurement of the real user experience. It follows the exact path that HTTP packets use, and can transparently work across firewalls.

(Note that Keynote's Diagnostic service does use a mechanism similar to our WebTrace, so this is not applicable to them)

Traditional traceroute programs send non-HTTP packets to trace the path. The main problem with such methods is that most firewalls block these packets. In addition, such packets may be routed through a completely different path than HTTP packets. The net result is that using traditional traceroute produces information that in many cases is meaningless.

(Note that Keynote's Diagnostic service does use a mechanism similar to our WebTrace, so this is not applicable to them)

Current Limitations

- WebTrace supports only Ethernet cards. Other devices, including modems are not supported, so Webtrace will not run from an agent connected to the Internet through dial-up.

- WebTrace does not work on a machine with two network cards.
- WebTrace requires that the user have administrator permission
- WebTrace can't run from a Windows 2000 machine
- In some sites, a proxy server is used to limit access to the outside world. Proxy servers do not support the protocol used for WebTrace and therefore WebTrace will show the route only up to the proxy server. Installing the Topaz agent on a machine beyond the proxy server will enable you to solve this problem.

3. Page Component Breakdown

Topaz 2.0 provides an analysis of all the components that make up a web page. For each component (gif, jpegs, HTML text), a breakdown is visually displayed, showing DNS lookup time, Initial Connection time, time to First Buffer, Download time, number of HTTP errors (if any), size of component, and redirection information.

Key benefits of Page Component Breakdown

Using this feature – web site designers can pinpoint performance hogs – large gifs that take too long to display, animated graphics that are causing slow response times, etc...

The analysis can be used in a "before" and "after" mode, to show the performance improvements achieved using various content delivery networks (CDNs) like Akamai, or caching solutions.

The analysis is extremely useful for highlighting poor performance related to page components provided through 3rd party data feeds – e.g. – banner ads provided through an ad server, stock charts fed in from a news agency etc. Page Component Breakdown enables business managers and web site designers make informed decisions on the tradeoff between download speed, and rich content.

Competitive differentiation

Mercury Interactive is the only Web APM solution provider to offer this functionality.

Note that some competitors (e.g.: Keynote) have a feature with the same name (Page Component Breakdown) – which actually does something else: Keynotes's Page Component Breakdown gives you similar metrics (DNS lookup time, Initial Connection time, time to First Buffer, & Download time) – **but does it for an entire single page**, without breaking it down into each gif, jpeg, etc..

Current Limitations

- Page Component Breakdown is not available for secure (SSL) sites
- Page Component Breakdown does not run automatically – but must manually be run for each page being diagnosed
- The Page Component Breakdown user interface supports checking only one URL at a time.
- The following files/components are not currently supported:
 - Movies
 - WAV files
 - Java Applets

- Visual Basic Scripts

4. Link report to the error description.

Topaz 2.0 enables users to get a direct link, from a failure indication (black 'X' in the Topaz reports) to the description of the failure as logged by the Topaz agent. By clicking on the 'X' they are taken directly to the error log.

Key benefit

Using this feature, a user can see exactly what went wrong (i.e. did we get a 404 error and on what page) - to expedite problem resolution.

5. New Recorder utilizing Astra technology

The new Topaz recorder is based on Astra Load Test 3.0 Service Pack 2. This new recorder is the default recorder of Topaz, although the previous recorder (Vugen-based) is also supported and bundled with the product. Either recorder can be used, and scripts based on either ALT or Vugen can be run, even in the same profile.

Key benefit

ALT scripts are easier to generate than Vugen scripts – the ALT recorder will work out of the box on virtually any web site. It provides many ease of use features, such as automatic correlation and ActiveScreen technology, not found in Vugen. This results in a much shorter ramp-up time for new users.

Since the work using a virtual browser, at the UI layer, ALT scripts also provide a more accurate emulation of real users than Vugen scripts

Current Limitations

- No support for modem speed emulation
- No ability to define a transaction on the loading of the initial page
- IE 5.0 Autocomplete is not supported

6. Improved Agent Stability

Topaz 2.0 incorporates all the service packs and patches that were released on top of Topaz 1.0, as well as many other fixes and improvements. There were major improvements made in Agent stability.

In addition we now internally monitor all the processes that the agent runs, and reload them in case of malfunction.

Topaz 2.0 Supported Environments:

The Topaz Console, Agent, Web Site, Alert Service and Topaz Recorder all run on Windows NT, as specified below.

Web Site supported platforms:

Windows NT server (sp4 and above)

Agent supported platforms:

Windows NT workstation (sp3 and above)

Windows NT server (sp4 and above)

Console supported platforms:

Windows NT workstation (sp3 and above)

Windows NT server (sp4 and above)

Supported Databases:

SQL 7.0

Access

Oracle – Available as a beta version, separate from the 2.0 GA version

Supported Browsers:

Internet Explorer 4.x, 5.0, 5.1

Netscape 4.0 and up

EXHIBIT B

Topaz®
User's Guide
Version 2.0

Online Guide



Introducing Network and Server Performance Reports

Network and server performance reports enable you to analyze application performance issues by providing information on network and server performance. You correlate this data with transaction performance problems, such as slow transaction response times and failed transactions, to analyze why and where problems are occurring, and whether they are network or server related. The following reports are available:

Report Name	Report Overview	For Details, See...
Transaction Breakdown	Displays breakdown of network/server time per transaction.	page 262
WebTrace	Displays detailed trace route to specified Web site.	page 267
Page Component Breakdown	Displays breakdown of network/server time per page component.	page 271



Transaction Breakdown Report

The Transaction Breakdown report provides a breakdown, for the selected time frame, of average transaction response times by DNS resolution time, connection time, server time, server time/network time overlap, network time, and client time. The report displays the size (in KB) of all pages in the transaction, as well as the average time it takes for each transaction to be completed.

You can drill down within a transaction to assess performance by location as well as by group.



Note that you can view the report in both graph and table format.



The Topaz Web Site • Using Topaz Reports

The chart below describes the report's breakdown categories:

Name	Description
DNS Resolution	Displays the average amount of time needed to resolve the DNS name to an IP address, using the closest DNS server. The DNS Lookup measurement is a good indicator of slow resolving time or problems with the DNS server.
Connection	Displays the average amount of time needed to establish an initial connection with the Web server performing the transaction. The connection measurement is a good indicator of problems along the network or whether the server is responsive to requests.
Server Time	<p>Displays the average amount of time that passes from the initial HTTP request (usually GET) until the first buffer is successfully received back from the Web server. The server time measurement is a good indicator of Web server delay.</p> <p>Note: The server time measurement is approximate, as it includes the network time for the initial GET request. However, this is usually very short.</p> <p>Note: Since the buffer size may be up to 8K, the server time might also be the time it takes to complete the request.</p>



Name	Description
Server/Network Overlap	Displays the average amount of time that server and network resources are being utilized simultaneously. The more overlap time, the greater the efficiency of resource usage.
Network Time	Displays the average amount of time that passes from the time the first byte arrives until the last byte arrives. The network measurement is a good indicator of network quality (look at the time/size ratio to calculate download rate).
Client Time	Displays the average amount of time that passes while a request is delayed on the client machine due to browser think time or other client-related delays.



Analyzing the Transaction Breakdown Report

The Transaction Breakdown report helps you determine whether poor transaction response times are being caused by network or server problems, or by client delays. The report displays the service level threshold range within which a transaction's response time falls (in the table view only). This makes it easy to quickly spot the response times whose performance is poor, according to set service level thresholds, and drill down (by location and group) to pinpoint the exact source of the poorly performing transactions. The Transaction Breakdown

report's color-coded bars enable you to differentiate among DNS resolution time, connection time, server time/network time overlap, network time, and client time.

By correlating transaction response time information with Transaction Breakdown report data, you can assess whether poor transaction response times are being caused by DNS resolution or connection problems, network latency or server delay, or client delay.

For example, using the Min./Avg./Max. Response Time report, you might determine that average response time for a transaction being run from a particular location is close to the maximum transaction time, indicating poor response times for the transaction at that location. By viewing the transaction breakdown for that transaction and location, you might discover that server time is unusually high. This could indicate a problem with the Web server serving the region in which the host running the transaction is located.

You can also compare the data from the Transaction Breakdown report to the information generated in the Page Component Breakdown report, which breaks down the transaction by page element. This enables you to analyze whether slow response times or transaction failure are caused by problems with the network, with your server, or with an element of your Web page (for example, an image that is too large). For details on the Page Component Breakdown report, see Page Component Breakdown Report on page 271.



Further, you can calculate the download rate by looking at the size measurement and time measurement. This can help you assess whether the transaction is too large or too slow.

You can further analyze the Transaction Breakdown report by using the tooltips, or by drilling down to the location or group view:

To analyze the report using the tooltips:

Place your cursor over a color-coded portion of any bar in the Breakdown column to get statistics relevant to that portion of the bar. The following statistics are displayed:

- Average DNS Resolution Time
- Average Connection Time
- Average Server Time
- Average Server/Network Overlap Time
- Average Network Time
- Average Client Time

For details on each breakdown category, see [page 263](#).

To drill down in the report:

- 1 Click a specific transaction to drill down to the location view.
- 2 Click a specific location to drill down to the group view.



EXHIBIT C

ERP Documents Store

Our offer: You pay nothing until after you have tried the ERP toolkit for 30 days.

Mercury Interactive First to Offer a Web Management Solution that Correlates End-User Performance Ex

Topaz 2.0 Allows Operations Staff to Drill Down From the End User Perspective to Isolate the Root Cause of Web Performance Problems; Pinpoint Network Bottlenecks to Keep Sites Performing at Peak Levels

FREE: Three Month Trial Offer at <http://topazactivewatch.mercuryinteractive.com/>

Camberley, Surrey - 30th May 2000 - Bridging the gap between Web applications and IT infrastructure, Mercury Interactive Corp., the world's leading provider of Web performance management solutions, has announced Topaz 2.0, the first Web application performance management solution that can correlate end-users' performance issues to the source of the problem. Whether the problem resides on an application page, network segment or server, Topaz 2.0 provides operations staff with detailed data to drill down to the root cause of performance problems so that issues can be resolved quickly before end-users experience them. This enables operations groups to deliver peak web site performance and protect the E-Business revenue stream.

Topaz 2.0 brings E-Businesses a wealth of new features focused on finding the root cause of web site performance problems, displaying results in easy-to-read graphics with anytime, anywhere reporting available via a Web browser. Topaz 2.0 identifies and pinpoints the specific location or server having problems, determines what those problems are, and alerts operations administrators so issues can be quickly remedied.

"Topaz 2.0 handles the most complex business transactions and will alert IT staff to any performance problems that will affect end-user experience in terms of speed or content," said Andy Crosby, European Field Market Manager, Mercury Interactive. "Using breakthrough technology Topaz 2.0 takes these alerts one step further and correlates them to their root cause within the web infrastructure for quick and effective problem resolution."

In addition, Topaz ActiveWatch, Mercury Interactive's hosted Web performance and monitoring e-service, inherits all of the new features of Topaz 2.0 and is now the perfect solution for e-businesses that need immediate performance monitoring results, but prefer the flexibility, speed and outsourced expertise provided by an application service provider (ASP) solution.

New Root Cause Analysis Features in Topaz 2.0

These include: Transaction Performance Breakdown to disclose the time spent on the network vs. server for each transaction to focus resolution efforts and expertise on either network or server, WebTrace to isolate slow segments on the network and Internet to provide a breakdown of end-to-end network time by "hop." With WebTrace, users are able to see exactly where a bottleneck started then work with their ISP or IT administrator to fix it. Component Analysis to generate reports that break down page performance measurement to each and every component (GIF, applet, HTML, text) of the URL. Reports visually display the page components so problems can be easily identified.

Market Analysts Agree - There's Billions of Dollars at Stake

Market analyst firms covering E-Business agree - there is a lot of money at stake if a web site is unreliable and does not perform to end-user expectations. Zona Research recently concluded that an estimated \$4.35 billion in e-commerce sales are at risk each year due to performance-related issues. Forrester Research found that companies with at least \$1 million in Web-based revenue each day lose more than \$8,000 per hour during a system outage. The need for a powerful and complete performance monitoring solution has never been greater, and Topaz 2.0 fills that need today.

About Topaz 2.0 and Topaz ActiveWatch

With Topaz and Topaz ActiveWatch, Mercury Interactive is offering the most complete, flexible Web application performance management solution available today. Whether companies need an in-house Web performance management solution, a fully hosted service, or a combination of both, Topaz and Topaz ActiveWatch offer an unparalleled solution. Topaz and Topaz ActiveWatch are fully integrated with Mercury Interactive's complete E-Business testing solutions. Once Topaz identifies a potential performance or availability problem, Mercury Interactive's testing solutions such as ActiveTest, LoadRunner, WinRunner, or the Astra product family can quickly and easily test the fixes. As a result, the time it takes to fix a site and get it back online can be substantially minimised, protecting the e-commerce revenue stream.

Pricing, Availability and free offer

Topaz 2.0 is a usage based subscription starting at \$2495 a month for monitoring five transactions and will ship in June. Topaz ActiveWatch is also scheduled for general availability in June and will start at \$3750. For more information please visit the website at <http://www.mercuryinteractive.com>

Mercury Interactive is offering a free 3-month subscription to Topaz ActiveWatch to monitor any company's own registered domain name Web site, including three business processes from three predetermined locations. To qualify, register at <http://topazactivewatch.mercuryinteractive.com/>

Topaz customers can also extend and leverage their investment to manage other applications beyond the Web with Tivoli Application Performance Management (TAPM). Jointly developed by Tivoli and Mercury Interactive, TAPM is an enterprise application performance management, monitoring and reporting solution that provides expansive measurement capabilities to ensure the availability and performance of mission-critical applications such as

SAP, PeopleSoft, Microsoft and Lotus. TAPM is available exclusively from Tivoli Systems.

Mercury Interactive

Mercury Interactive is the leading provider of Web performance management solutions which help E-Businesses deliver application performance, reliability and a positive user experience for competitive advantage. The company's performance management products and hosted services are open and integrated to best test and monitor business-critical Web applications. More than 10,000 B2B and B2C E-Businesses, ISPs, ASPs, systems integrators, and consultants use Mercury Interactive solutions. Mercury Interactive is headquartered in Sunnyvale, California and has 40 offices worldwide, with its UK HQ in Camberley, Surrey. More at <http://www.mercuryinteractive.com>

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NB: This release may be downloaded from Consort's Web site at: <http://www.consortpr.co.uk/mercury.htm>

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Newsflash

The Implementers' Guide to Success with Enterprise Resource Planning

Follow the "Proven Path" to successful implementation of enterprise resource planning

Effective forecasting, planning, and scheduling is fundamental to productivity—and ERP is a fundamental way to achieve it. Properly implementing ERP will advantage and help you run your business more effectively, efficiently, and responsively. This toolkit is structured to support all the people involved in ERP: CEO and others in the executive suite to the people doing the detailed implementation work in sales, marketing, manufacturing, purchasing, logistics, financial, and human resources.

This toolkit is not primarily about computers and software. Rather, its focus is on people—and how to provide them with superior decision-making processes for fulfillment, **supply chain management**, financial planning, e-commerce, **asset management**, and more. This comprehensive guide can be used as a self-help tool for top management, who need only specific pieces of information, or as a virtual checklist for those who can use detailed guidance every step of the way.

View the full toolkit's contents

EXHIBIT D



MERCURY INTERACTIVE

Product Information

Topaz ActiveAgents: Transaction Breakdown

Transaction Breakdown

Period: Apr. 9, 2000 12:00 AM - Apr. 15, 2000 11:59 PM

Profile: TradeOnline
601 total transactions

- DNS Resolution
- Connection
- Server Time
- Server/Network Overlap
- Network Time
- Client Time

Data Table

	Size (KB)	Breakdown
login_user	34.29	
register_new_user	33.19	
stock_5day_chart	33.28	
symbol_lookup	34.56	
view_portfolio	33.90	
Milliseconds		760 1520 2280 3040 3800

Focus problem detection efforts on server or network